Modernizing Applications with Containers and Orchestrators

WorkshopPLUS

Duration: 3 days

Focus Area: Operations and Monitoring

Difficulty: 300- Advanced

Overview

WorkshopPLUS - Modernizing Applications with Containers and Orchestrators is a three-day immersive course with blend of instructor led training sessions and exercises in a lab environment. This course will help you understand how to modernize your applications using the latest container technology.

This workshop takes the hands-on approach to cover designing, developing and deploying applications using Docker Containers targeting Linux and Windows platform.

Objectives

After completing this training, students will be able to:

- Meet today's and tomorrow's challenges by acquiring knowledge on Linux and Windows Containers. Understanding the "Containerization" process, using Containers to design and develop Microservices, and Clustering & Orchestration Tools, including Kubernetes and Service Fabric.
- Implement CI/CD pipeline for Containerized Applications using Azure DevOps to build, publish and trigger deployments. Lastly you will learn about monitoring and troubleshooting Containers.
- Implement CI/CD pipeline for Containerized Applications using Azure DevOps to build, publish and deploy into diverse orchestration platforms (Kubernetes, Service Fabric)

Key Takeaways

Course Material

- Lift and shift of legacy .NET Applications to Windows Containers
- Process of packaging multi-container legacy applications. Build Docker compose files to launch multi-container application.
- Pros and cons of lift and shift approach towards containerization and discuss modern approaches towards containerization and beyond

Hands-on Labs

- Most of the concepts covered above will be supported by hands-on labs and demos.
- Attendees have access to resources and labs for up to 6 months after workshop completion.

Agenda

Day 1

- Introduction to Containers
- Getting Started with Windows Containers

Day 2

- Advanced Docker Topics
- Microservices and Containers
- Container Orchestrators

Day 3

- DevOps with Containers
- Monitoring and Troubleshooting Containers

Plan for three full days. Early departure on any day is not recommended.

Course Details

Module 1 - Introduction to Containers

- Containers
- Docker Fundamentals (Docker Engine and Client)
- Container Images and Docker Registry
- Build Container Image using Dockerfile
- Start, Stop, and Remove Docker Containers
- Use of Tags for Versioning Images
- Microsoft Partnership with Docker Inc. +Lab
- SQL Server 2017 Containers.

Module 2 - Getting Started with Windows Containers

- Windows Containers and Hyper-V Containers.
- Nano Server and Windows Server Base OS Images.
- Windows Container Layering.
- Build and Run IIS Server, ASP.NET 4.7 Web Application ASP.NET Core Application
- Visual Studio Support for Docker.
- Active Directory Service Accounts for Windows Containers.
- Patching and Upgrading Containers. +Lab

Module 3 – Advanced Docker Topics

- Data Volumes
- Docker Private Registry
- Docker Compose
- Docker State Machine and Container Lifecycle
- Limit Container's Memory and CPU Usage
- Docker Networking

Module 4 – Microservices and Containers

- Microservices Patterns
- Microservices Real World Case Studies
- Microsoft Platform and Microservices
- Containers & Microservices

Module 5 – Container Orchestrators

- Azure Kubernetes Service (AKS)
- Azure Container Service (Kubernetes, Swarm, DC/OS)
- Azure Container Registry
- Azure Service Fabric
- Azure Container Instances

Module 6 – DevOps with Containers

- DevOps
- Containerized Workflow Pipeline
- Azure DevOps
- Azure DevOps: Continuous Integration - Windows/Linux
- Azure DevOps : Continuous Deployment - SF/AKS

- **Module 7 - Monitoring and Troubleshooting Containers**

- Useful Docker and kubectl commands for troubleshooting containers
- Microsoft Operations Management Suite (OMS) Monitoring and Log Analytics
- 3rd Party Azure Partner Solutions

Recommended Qualifications

The attendees must have:

- Familiarity with Visual Studio
- Experience with C# and .NET
- Fast and reliable internet connectivity
- Visual Studio 2015 (or newer) and the Azure SDK
- Azure Subscription
    - Promo codes will be provided if necessary

Hardware Requirements

- An Intel Core-i5-based PC
- USB port
- Microsoft/Windows Live ID to connect to the virtual environment
- 4 GB RAM
- 128 GB HDD
- Windows 7 SP1 or later
- Office 2013 Professional Plus
- Internet access with at least 1 Mbps bandwidth per student.

For more information

Contact your Henson Group representative for further details.